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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

087805-9016-00

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on December 21, 2005

Signature

Typed or printed name

Karen K. Kline

Application Number

09/700,321

Filed

1/16/2001

First Named Inventor

Martin Weston

Art Unit

2614

Examiner

Trang U. Tran

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s) numbered 1-4.

Note: No more than five (5) pages may be provided.

I am the

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applicant/inventor.

☐

assignee of record of the entire interest.

See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96).

☒

attorney or agent of record.

Registration number 37,945

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attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34 _____

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1-414-225-4947

Telephone number

December 21, 2005

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below.

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*Total of _____ forms are submitted.

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REMARKS ACCOMPANYING PRE-APPEAL BRIEF REQUEST FOR REVIEW

Applicants respectfully traverse the rejections of claims 1-15 in the Office action of September 21, 2005. As discussed below, the Examiner has failed to establish a *prima facie* case of anticipation or obviousness because the cited references do not teach or suggest all the limitations of the claims.

I. The Claimed Invention

The claimed invention relates to a method of video signal processing (claims 1-7) and an apparatus for video signal processing (claims 8-15). Claim 1 recites:

1. A method of video signal processing, comprising the steps of conducting three linear filtering operations on an input video signal to produce three filtered signals, each linear filtering operation comprising the taking of a weighted sum of pixels; and **multiplying together said three filtered signals to produce an output video signal.**

Thus, claim 1 requires performing three linear filtering operations on an input video signal to produce three filtered signals. **The three filtered signals so produced are then multiplied together.** For example, if the filtered signals are *a*, *b*, and *c*, then claim 1 requires multiplying the signals *a*, *b*, and *c* together, that is, $a*b*c$. Claim 1 specifically requires that the three filtered signals—not simply constants (e.g., k_1 , k_2 , k_3 , etc.)—are multiplied together.

As explained in Applicants' specification, the claimed invention is more efficient and less costly to implement than prior art approaches. (See, e.g., Applicants' Specification, page 3, line 19 to page 4, line 3.)

Claim 8 is similar to claim 1 and recites:

8. (Original) Apparatus for video signal processing comprising an input terminal for receiving an input video signal; first, second and third linear filters each connected with the input terminal and arranged to provide an output through

taking a weighted sum of pixels; a **first multiplier for multiplying together the respective outputs of the first and second filters; and a second multiplier for multiplying together the respective outputs of the first multiplier and the third filter to produce an output video signal.**

II. **No *Prima Facie* Case of Anticipation or Obviousness**

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of anticipation or obviousness because the cited references do not teach or suggest:

- (1) **“multiplying together said three filtered signals to produce an output video signal”** (independent claim 1); or
- (2) **“a first multiplier for multiplying together the respective outputs of the first and second filters; and a second multiplier for multiplying together the respective outputs of the first multiplier and the third filter to produce an output video signal”** (independent claim 8).

A. **Chen et al.**

Chen et al. (U.S. Patent No. 6,335,990) discloses a spatio-temporal filter that uses a number of linear filters in combination. The filter in Chen is implemented using both adders and multipliers. However, **the multipliers only operate to multiply a filtered signal by a constant or weighting value.** (See Chen, col. 7, line 56 to col. 8, line 3; Fig. 8). Unlike the claimed invention, no filtered signals in Chen are ever multiplied together. Therefore, Chen does not teach or suggest the above-identified elements of independent claims 1 and 8, and the Examiner has failed to establish a *prima facie* case of unpatentability of claims 1 and 8 and their respective dependent claims.

Faced with this fundamental deficiency of Chen, the Examiner has fashioned rejections that sidestep the missing claim elements and in effect focus exclusively on the terms “output

video signal” in claims 1 and 8. The Examiner’s apparent position is that it is mathematically possible, in certain hypothetical situations, for the output video signal of Chen to be the same as the output video signal of Applicants. More specifically, the Examiner notes that it is mathematically possible for the output signal of Chen, $a*k_1 + b*k_2 + c*k_3$, to equal the output signal recited in Applicants’ claim, $a*b*c$. For example, $a*k_1 + b*k_2 + c*k_3 = a*b*c$, if a , b , and c all equal 0 or if a , b , and c all equal 1 and k_1 , k_2 , and k_3 all equal $1/3$. Therefore, according to the Examiner, it does not matter how the output video signal is produced by Applicants’ claims.

The Examiner’s reasoning is logically flawed because it equates the operations of addition and multiplication. Applicants note that the sum (addition) of three values or signals is **not** equivalent to the product (multiplication) of the same three values or signals. The fact that there are rare circumstances (such as $0+0=0$ and $0*0=0$; and $2+2=4$ and $2*2=4$) in which the results of addition and multiplication are the same does not change what Applicants can only describe as a fundamental maxim of mathematics: Addition and multiplication are not the same or equivalent to each other. The fact that the Examiner can point to some rare circumstances in which addition and multiplication yield the same result does not mean that Chen teaches the claimed subject matter. In fact, Chen is devoid of any teaching or suggestion of any circumstances or mathematical coincidences in which addition and multiplication yield the same result.

The fallacy of the Examiner’s reasoning becomes even clearer if one attempts to substitute, in a real world context, signal processors that sum signals in place of signal processors that multiply signals. This substitution simply would not work, and any person of ordinary skill in the art would recognize this to be so. (Plotting the curves of the two operations will also show the fundamental differences, even though the curves might intersect at some points.) Addition and multiplication are not implemented using the same hardware and software, and the costs of

implementing each are different, which further evidences that the two are not equivalent.

For at least the above reasons, Chen is devoid of the claim limitations identified above, and the Examiner's rejections of claims 1-15 must be withdrawn.

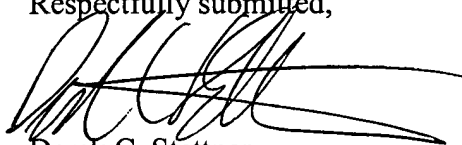
B. Slavin

Slavin (U.S. Patent No. 6,088,388) fails to remedy the above-identified deficiencies of Chen. Slavin discloses a non-linear digital FIR filter that uses a plurality of FIR filters in series, each filter representing each product term of a polynomial of order F. A signal in Slavin passes in a series fashion between the individual filter elements. That is, a single signal is filtered and the single filtered signal is passed directly to the next filter for further filtering. (See Slavin, Fig. 7.) Nowhere does Slavin disclose a first filtered signal multiplied by a second filtered signal to yield a result, let alone the result multiplied by a third signal.

III. Conclusion

For at least the above reasons, Applicants respectfully request withdrawal of the rejections of claims 1-15.

Respectfully submitted,



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